

ABSTRACT

A method for fabricating a protective helmet includes the steps of: (a) providing a fiber-based filler, such as a fiberglass sheeting; (b) mixing course ceramic particles into a thermoset resin; (c) impregnating the resin/ceramic particle mixture into the fiber-based filler; (d) forming or molding the impregnated fiber-based filler into a shape of a protective helmet; and (e) curing the resin mixture impregnated into the fiber-based filler. The course ceramic particles are preferably created by chopping a ceramic material. The presence of the ceramic particles in the composite helmet substantially reduces the heat reflectance of the helmet; while also reducing the overall weight of the helmet, since the ceramic material weighs less than the portion of resin material that the ceramic material is being used in place of. Finally, because the ceramic particles are course, they will not all flow to "low spots" in the helmet during the curing process. The course ceramic particles will remain entangled with, and caught on the fibers of the fiber-based filler during the curing process, thereby ensuring a more even distribution of the ceramic particles throughout the finished helmet.

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